

DIGITAL COMMUNICATIONS METHOD AND SYSTEM FOR COMMUNICATING OVER CHANNELS WITH BLOCK FADING AND BURST JAMMING

ABSTRACT OF THE DISCLOSURE

Method and apparatus are disclosed for obtaining improved performance of digital communications channels using Forward Error Correction (FEC) when operating over channels with block fading or burst jamming. A channel of interest typically involves jamming or severe signal attenuation (e.g., fading) over some number of contiguous symbols of the transmission. One suitable application is when the channel is periodically obstructed due to the rotation of a propeller blade, resulting in a periodic block fading channel. In the preferred embodiment zero symbols are inserted into the received signal stream, prior to the FEC decoder, at times that are estimated or otherwise determined to correspond to periods of jamming or severe fading. The zero symbols effectively “erase” the severely degraded symbols. It is assumed that the presence of the zero symbols is less detrimental to the operation of the FEC decoder than the presence of the severely degraded symbols, especially in that the channel interleaving/de-interleaving operations result in the zero symbols being temporally distributed over a large block of received symbols.